REQUEST FOR PROPOSAL

**IP VIDEO REPLACEMENT FOR EXISTING
SECURITY SURVEILLANCE SYSTEM**

FOR

JEFFERSON COUNTY COURTHOUSE
311 S. Center Ave.
Jefferson, WI 53549

August 19, 2014

<div align="center">

Request for Proposal

IP Video Replacement for Existing Security Surveillance System
For
Jefferson County Courthouse

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Jefferson County Courthouse is seeking proposals for upgrading the video surveillance system.

RFP Calendar of events:

RFP Released	August 19, 2014
Mandatory Pre-bid walkthrough	August 22, 2014
Proposal due	September 5, 2014
Award of Contract by	September 12, 2014
Meet to finalize Project SOW	week of September 15, 2014
Begin Project installation	week of September 22, 2014
Project Completion by	November 7, 2014

Sealed proposals for construction of the above named project will be received on or prior to September 5, 2014, 3:00 CDT, at the office of:

<div align="center">

Jefferson County Courthouse Administration
311 S. Center Ave. Room 111
Jefferson, WI 53549
Attn: Mark Miller

</div>

Any proposals received after that time will be returned unopened. All proposals shall be in strict accordance with the specifications. There will not be a public opening.

To maintain confidentiality of this facility, documents are to not be reproduced in any manner without written consent of Jefferson County.

Proposers will furnish and install all equipment including controllers and associated hardware, software, wiring, etc. required to make a turn-key system. Technical specifications for the hardware and software are included in this RFP, and must be met or exceeded.

Prices quoted should represent fully installed and tested equipment, including al labor, materials, and travel expenses. System training for appropriate county staff must also be included.

A single prime contract will be awarded. (No sub-contractors)

A mandatory walk through will be held at the project site on Friday August 22, 2014 at 10am. Interested parties are to meet in the County Courthouse's Main Lobby. Representatives of the County will be present to discuss the project.

Any bidder may withdraw his bid any time prior to the scheduled time for opening of bids. Withdrawn bids will be returned unopened. All bids shall be effective and open for acceptance for a period of 45 days after date and time for filling of bids.

The proposals will first be reviewed to determine if technical requirements are met, and if additional mandatory requirements are met. Failure to meet mandatory requirements will result in the proposal being rejected. In the event that all vendors do not meet one or more of the mandatory requirements, the County reserves the right to continue the evaluation of the proposals and to select the proposal which most closely meets the requirements specified in the RFP.

Accepted proposals will be reviewed by an evaluation committee. The committee may review references, request oral presentations, and conduct an on-site visit.

The County reserves the right to reject any and all proposals and to negotiate the terms of the contract, including the award amount, with the selected proposer prior to entering into a contract which will be to the best interest of the County.

BID FORM

TO: **Jefferson County Courthouse**

PROPOSAL FOR: Security Surveillance Upgrade
       311 S. Center Ave.
       Jefferson, Wisconsin

FROM: _____

1. We the undersigned, having familiarized ourselves with the local conditions, The Request For Proposals, and addenda as issued by the Owner, do hereby propose to execute the proposed contract and to furnish all labor, materials, necessary tools, expendable equipment, utility and transportation services necessary to complete the work in strict accordance with the contract documents, including addenda numbers

  _____

 BASE BID: Lump sum contract price for the work for the sum of:

 _____ Dollars ($_____)

 TIMEFRAME: Substantial completion will be achieved by November 7, 2014. If the timeframe is not possible for Bidder; provide a proposed substantial completion date:

 _____

2. In submitting this bid, it is understood that the right is reserved by the Owner to reject any or all bids. It is agreed that this bid may not be withdrawn for a period of 45 days from the opening thereof.

3. The undersigned agrees, if awarded the contract, to commence the contract work on or before a date to be specified in a written notice to proceed.

4. The undersigned agrees, if awarded the contract, to hold prices at the amount below for a period of 120 days from the date of opening.

5. The receipt of the following addenda to the specifications are hereby acknowledged as follows:

 ADDENDUM NUMBERS   DATE RECEIVED

 _____ _____

 _____ _____

 _____ _____

6.   I hereby certify that all statements herein are made on behalf of:

_____.
(Name of Corporation, Partnership or Person submitting bid)

(complete one of the following three)

A corporation organized and existing under the laws of the State of _____;

A partnership consisting of _____;

An individual trading as _____;

of the City of _____ of the State of _____;

(delete two of the items in parenthesis following)

that I have examined and carefully prepared this proposal from the plans and specifications and have checked the same in detail before submitting this proposal; that I have full authority to make such statements and submit this proposal in (its) (their) (my) behalf; and that the said statements are true and correct.

Signature _____

_____
(Title, if any)

Sworn and subscribed to before me this _____day of _____, year _____.

_____
(Notary or other office authorized to
administer oaths)

My commission expires: _____

***

PROPOSAL SELECTION AND AWARD PROCESS

The following areas will be evaluated by an evaluation committee.

- Technical Proposal (Features)
- Personnel Certifications
- Support & Maintenance
- Quality & Ease of Conversion (interfaces)
- References
- Price

The importance of cost factors in the selection will depend on the magnitude of the cost differentials identified, the credibility of such differentials, the keenness of competition in the Technical Proposal, and the impact of other factors. Any significant inconsistency, if unexplained, raises a fundamental issue of the vendor's understanding of the nature and scope of the work required. The burden of proof as to cost credibility rests with the Proposer. Proposed cost will be evaluated not only to determine if the cost is reasonable and realistic, but also to determine the Proposer's understanding of the program and their ability to organize and perform the contract.

The County of Jefferson may make such investigations as deemed necessary to determine the ability of the Proposer to perform the work.

Jefferson County reserves the right to reject any and all proposals, to waive any and all informalities and to negotiate contract terms with the successful proposer, and the right to disregard all nonconforming, non-responsive or conditional proposals.

PROPOSER RESPONSIBILITIES:

Jefferson County will not pay for any estimates or work required on the part of the Proposer to bid on this project.

The installation will include all appropriate training, parts, wiring and changes or additions needed to support the County Courthouse's video surveillance functions and operation. The selected vendor will supply all hardware and application/operating software needed to provide a fully functional system shall be included in the bid price. Any item not specifically stated but needed for the proper function of the system will be provided and installed by the vendor at no charge. Any items or preparatory site work that are to be supplied by Jefferson County will be provided by the successful contractor a minimum of 7 days prior to installation. This should include specifications, diagrams, etc., as needed.

The installation thereof shall be accomplished with minimum interruption to the normal business operation. The selected vendor will coordinate the installation and testing of the new system with the Maintenance Director Mark Miller.

If the proposed schedule indicated in the RFP cannot be met by the Contractor, indicate below how many days after receipt of order approval you will be able to schedule the aforementioned:

Number of days after receipt of Bid acceptance for onsite SOW meeting: _____

Number of days after receipt of Bid acceptance for system install to begin: _____

Number of days after receipt of Bid acceptance for Project Completion: _____

Optional features should be included with your proposal response and must be clearly marked as optional features and priced to include installation, parts, and labor charges. The selected vendor must honor these optional feature costs for 180 days after system purchase.

The selected vendor will have total responsibility for system compatibility and successful performance. Jefferson County will provide a representative to review and verify all camera views before system acceptance is given. If any camera views are not acceptable to the County, they must be addressed and resolved before system installation is considered complete, and accepted by the County.

Performance Bond and Labor and Material Bonds

A Performance Bond and a Labor and Material Bond, each in an amount equal to 100% of the Contract price or 100% of the estimated cost of the work, as the case may be, ensuring to the benefit of the obligee and of all persons who perform labor upon or furnish materials for the buildings covered by said Contract must be executed concurrently with the Contract. Inability of the Contractor to qualify for such bonds will deprive him of the award of the Contract irrespective of the amount of his bid.

Safety of Person and Property

The Contractor shall take all necessary precautions for the safety of, and shall provide all necessary protection to prevent damage, injury or loss to:

> 1. All employees on the Work and all other persons who may be affected thereby; and/or who may reasonable be expected to be attracted to the site;
>
> 2. The Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor.
>
> 3. Other property at the site(s) or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall indemnify and hold harmless the Owner, his agents and employees, against any claim or liability arising from or based upon, the violation of any such law, ordinance, rule, regulation, order or decree

Contractor's Liability Insurance

> 1. During the term of the Contract, the Contractor shall, at their own expense purchase and maintain the following insurance in companies properly licensed and satisfactory to Owner.
>
>> a. A policy to cover the full liability of the Contractor in accordance with the provisions of the workmen's compensation law of the state in which operations are to be performed, any act or acts amendatory thereof, and including not less than $100,000 employer's liability insurance.
>>
>> b. Public Liability including coverage for direct operations, sublet work, elevators, contractual liability, and completed operations with limits not less than those stated below:
>>
>>> 1. Bodily Injury and Property Damage Liability: A policy or policies to insure the

Contractor for legal liability on account of personal injury (including death resulting there from) or loss of or damage to property however arising in the execution of this Contract. The limits of liability for personal injury shall not be less than $500,000 for each person and subject to that limit for each person $1,000,000 for each occurrence. The limit for property damage liability shall not be less than $5,000,000 each occurrence. The policy or policies shall include but not be limited to coverage for the contractual liability assumed in this agreement, completed operations and products liability.

2. Regarding Completed Operations or Product Liability: The Contractor will provide evidence that completed operations or products liability insurance will be maintained in effect for a period of _2 years__ after the acceptance of the work under this Contract by the Owner.

c. Comprehensive Automobile Liability Insurance including coverage for owned, non-owned and hired vehicles – with limits not less than those stated below:

1. Bodily Injury Liability:
$500,000 each person
$1,000,000 each occurrence

2. Notification of Alteration or Cancellation of Insurance:
The policies or certificates evidencing the coverages provided above will be filed with the Owner. Such policies or certificates shall provide that the insurance will not be materially altered or canceled without thirty (30) days prior written notice to the Owner.

3. Liability insurance may be arranged by Comprehensive General Liability and Comprehensive Automobile Liability policies for the full limits required; or by a combination of underlying Comprehensive Liability policies for lesser limits with the remaining limits provided by an Excess or Umbrella Liability policy.

4. Contractors shall require Subcontractors not protected under their insurance to take out and maintain workmen's compensation insurance and insurance of the same kind in amounts specified above. Contractors shall submit evidence of coverage of insurance required.

5. The Contractor may carry sufficient comprehensive insurance on his equipment at site of work and on route to and from site to fully protect him; the Contractor should require same coverage of his Subcontractors. It is expressly understood and agreed that Owner shall have no responsibility therefore.

6. The owner shall be responsible for and at his option may maintain such insurance as will protect him from his contingent liability to others for damages because of personal injury, including death, or damage to property, which may arise from operations under this Contract.

Property Insurance

1. Owner's Insurance: Standard Fire, Extended Coverage and Vandalism

a. The Owner shall take out and maintain during the life of the Contract, insurance covering the perils of fire, extended coverage, vandalism and malicious mischief, in the full amount of the value of the work.

b. Such insurance shall cover work performed and materials delivered to the site of the project which are to be included in the permanent construction, whether or not installed, except as hereinafter provided. The Contractor shall not be liable for loss of or damage to such work or materials caused by fire or other perils identified above. The policy or policies maintained by the Owner to cover such values will include (without specifically naming any party other than the Owner) any interests of Contractors or Subcontractors in such work performed and materials delivered.

c. The Owner waives any right of recovery he may have against the Contractor or Subcontractors for damage to or destruction of property that is insured under the policy (ies) referred to above. Loss, if any, to such materials or work performed shall be adjusted with the Contractor and be payable to the Owner.

d. The Contractor shall be responsible for any and all loss of material connected with the construction due to unexplained disappearance, theft or misappropriation of any kind or nature. The foregoing provisions shall not operate to relieve the Contractors and Subcontractors of responsibility for loss or damage to their own or rented property or property of their employees of whatever kind or nature, including but not limited to tools, equipment, forms, scaffolding and temporary structures including their contents. The Owner shall in no event be liable for any loss or damage to any of the aforementioned items or any other property of Contractors and Subcontractors, which is not included in the permanent construction. The Contractors and Subcontractors hereby waive any rights of recovery they may have against the Owner for damage or destruction of property of whatever kind of nature whether it's their own property or property of their employees.

e. The Owner will furnish evidence of such insurance to the Contractor if he so requests. The certificate furnished by the Owner will agree to provide no less than ten (10) days prior notice of cancellation or materials change in the coverage.

2. Contractor's Insurance

a. The Owner's insurance will not cover equipment such as tools owned by mechanics or tools, sheds, hoists, canvasses, tarpaulins, mixers, scaffolding, staging, towers owned or rented by Contractor, or similar property not expended in the completion of, or to become a permanent part of the installation or structure. Contractor may carry such additional Property Insurance as he may deem necessary to protect his equipment and property.

For items not included, Contractor, at his option, may include other insurance items as theft, collapse, special hazards, by providing "Difference in Conditions" policy.

Prevailing Wage

This is a prevailing wage job. Contractors shall bid their labor costs accordingly and will be required to submit wage records.

TECHNICAL REQUIREMENTS

Introduction

All items, details of construction, services or features not specifically mentioned which are regularly furnished in order to provide this system shall be furnished at the proposal price and shall conform in strength, quality and workmanship to that usually provided by the practice indicated in this specification. Notwithstanding the details presented in these specifications, it is the responsibility of the Proposer to verify the completeness of the materials and the suitability of the devices to meet the intent of these specifications.

These specifications do not include any proprietary items, components, circuits, or devices that would preclude any manufacturer from producing equipment to meet these specifications. All technical tolerances, ratings, power outputs or any technically specified criteria contained within these specifications are considered to be within the current state of the electronic art and are currently being met by commercially available equipment. The fact that a manufacturer chooses not to produce equipment to meet these specifications, ensuring the above criteria are met, will not be sufficient cause to adjudge these specifications as restrictive.

A proposal will not be considered if a proposer has failed to show without a doubt that he is proposing on regularly manufactured equipment, **tried, proven and in current use.** A list of three users of similar equipment, including a contact person, phone number and if possible e-mail address, must be provided **with your proposal response. The vendor must be an authorized manufacturer's representative of the product(s) they are proposing, and be able to furnish proof upon request.**

Proposer shall attach manufacturer's current literature and specifications covering the latest model of equipment on which he is proposing and which specifically and clearly indicates coverage of all items shown in the proposal specifications. All equipment proposed shall be new, not used or remanufactured. If the manufacturer's literature does not clearly reflect these items, the proposer shall attach certification from the manufacturer that the proposals comply with the proposal specifications.

The Proposer shall provide all necessary parts, labor and materials for service. All work shall be complete notwithstanding any omission or errors in the specification.

Proposer's solution shall provide 3 years of hardware and software warranty coverage.

Proposers shall provide emergency service with a 1 hour telephone response time and 4 hour on-site response time if required for 3 years.

Proposer should include recommend payment terms for the project.

The successful Proposer shall coordinate installation and programming with Mark Miller. Proposers must include in their RFPs a list of organizations, including points of contact (name, address, and telephone number), which can be used as references for similar work performed in the area of service required. Selected organizations may be contacted to determine the quality of work performed and personnel assigned to the project.

The Proposer will supply all information requested. Initial each section to verify that specifications are met; enter "NA" if options or specifications are not available. All exceptions or equivalencies must be fully explained or documented.

Warranty

The contractor shall guarantee all equipment, including material used therein, against mechanical, electrical, design, and workmanship defects. In the event defects become evident within the warranty period, the contractor shall furnish **new** replacement parts, materials and procedures, and labor as necessary, at no cost to the County. The contractor shall be liable to the County for supply of information, as well as materials and labor necessary for mandatory revisions determined by the manufacturer, at no cost to the County for the duration of the warranty period.

The duration of the warranty period shall be stated by the vendor in his bid response and shall be a minimum of three (3) years for hardware and software. In addition to these general warranty requirements, the following specific requirements apply:

a. The contractor warrants that the equipment delivered under this contract conforms to the contract requirements and is free of any defect of equipment, material or workmanship.

b. The contractor warrants that all equipment furnished hereunder is new, current manufacture, and includes the latest approved hardware and software designs being delivered by each manufacturer.

c. Under this warranty the contractor shall remedy at its own expense any failure to conform to the general contract terms, specifications, or any other document included by reference into this contract. Contractor also agrees to remedy at its own expense any defect in materials or workmanship. Contractor agrees to keep a complete inventory of critical spare parts at all times.

d. The contractor shall remedy at its own expense damage to County-owned or controlled real or personal property, when that damage is the result of the contractor's negligence. The contractor shall also restore any work damaged in fulfilling the terms of this contract. The contractor's warranty with respect to work repaired or replaced hereunder will run for one year from the date of such repair or replacement.

e. The County shall notify the contractor in writing within a reasonable time after the discovery of any failure, defect, or damage.

f. Should the contractor fail to remedy any failure, defect, or damage within a reasonable time after receipt of notice thereof, the County shall have the right to replace, repair, or otherwise remedy such failure, defect, or damage at the contractor's expense. This failure is also a breach of contract. Thus, the County's rights are in addition to and not as an alternative to the County's rights for breach of contract.

g. In addition to the other rights and remedies provided by this clause, all subcontractors', manufacturers', and suppliers' warranties expressed or implied, regarding any work and materials shall, at the discretion of the County, be enforced by the contractor for the benefit of the County. The contractor shall obtain any warranties, which the subcontractors, manufacturers, or suppliers would give in normal commercial practice.

h. If directed by the County, the contractor shall require any such warranties to be executed in writing to the County.

i. The "acceptance" of subsystem or individual equipment by the County shall not limit the County's right with respect to material defects, workmanship, or fraud of the whole system.

j. If there is a conflict between a clause in this warranty and a clause in the contractor's warranty, the clause that extends the greatest protection to the County under the circumstances in question shall control.

Project Summary

1.   Remove and dispose of all existing security surveillance equipment and cable in the County Courthouse.

2.   Install interior IP cameras and exterior IP cameras in a heater/blower housing to record predetermined views.

3.   Install NVR ('s) to record and store video from the cameras for a period of at least (60) days.

4.   Install all cabling and power supplies needed to operate the system to identified data closets and switches.

5.   Provide training on the system to all appropriate County staff.

6.   Provide a 3-year warranty for hardware and software for the system.

7.   Provide 24/7 support staff providing 1 hour telephone response and who can be on-site within 4 hours of trouble reporting.

Execution of Surveillance System Installation

1.   The Vendor shall carefully follow instructions in documentation provided by the manufacturer to insure all steps have been taken to provide a reliable, easy-to-operate system

2.   All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation

3.   All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMS) or Network Video Recorder (NVR)

4.   All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

System Technical Requirements

1. Video Surveillance Camera Standards – Camera Types A, B, C, D, E & F

Camera Type A

General Requirements

> The camera shall be of manufacturer's official product line, designed for commercial/industrial 24/7/365 use.

> The camera shall be based upon standard components and proven technology using open and published protocols.

Quality Assurance

All camera installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

All equipment provided shall be backed by a minimum of three years manufacturer warranty.

The specified unit shall be manufactured in accordance with ISO 9001 / EN 29001.

Environmental sustainability

The specified unit shall be manufactured in accordance with ISO 14000.

The specified unit shall be compliant with 2002/95/EG RoHS and 2002/96/EG WEEE.

Certifications and standards

The camera shall carry the following EMC approvals:

EN55022, EN55024

FCC Part 15 - Subpart B

VCCI

C-tick AS/NZS CISPR22

ICES-003

The camera shall meet the following product safety standards

UL / EN 60950 -1

UL / EN 60950 -22

The camera shall meet the following standards

MPEG-4:

ISO/IEC 14496-10 AVC (H.264)

Networking:

IEEE 802.3af (Power over Ethernet)

IEEE 802.1X (Authentication)

IPv4 (RFC 791)

IPv6 (RFC 2460)

QoS – DiffServ (RFC 2475)

Network video

ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization.

PRODUCTS

General

The camera shall:

Be designed to provide at least two video streams in HDTV 720p (1280x720) at up to 30 frames per second (60Hz mode) or 25 frames per second (50Hz mode) using H.264 or Motion JPEG.

Be equipped with Day/Night functionality and remote zoom and focus capabilities.

Operate on an open source; Linux-based platform, and including a built-in web server.

Be equipped with a slot for SD/SDHC memory card expansion.

Be manufactured with a tamper resistant body.

Hardware

The camera shall:

Use a high quality IR-sensitive progressive scan sensor.

Be equipped with a removable IR-cut filter, providing so-called day/night functionality.

Be equipped with a high-quality varifocal lens, provide automated iris functionality with P-Iris control, and provide remote zoom and focus functionality.

Provide pictures down to 0.15 lux while in day mode (with IR-filter in use) and down to 0.03 lux while in night mode (with IR-filter removed).

Support memory expansion by providing an available SD/SDHC card slot.

Video

Resolution

The camera shall be able to deliver at least two individually configurable full resolution full frame rate video streams over IP networks.

Supported video resolutions shall include:

640x360 (16:9)

640x480

 (16:9)

1280x960

1400x1050 (scaled)

The camera shall be able to provide both landscape format (4:3 and 16:9 aspect ratio) as well as corridor format (3:4 and 9:16 aspect ratio).

Encoding

The camera shall:

Support Motion JPEG encoding in a selectable range up to 30 frames per second in all resolutions.

Support Baseline Profile H.264 encoding with motion estimation in up to 30 frames per second in all resolutions.

Support Main Profile H.264 encoding with motion estimation and context-adaptive binary arithmetic coding (CABAC) in up to 30 frames per second in all resolutions.

Be able to provide independently configured simultaneous H.264 and Motion JPEG streams.

Support both Constant Bit Rate (CBR) and Variable Bit Rate (VBR) in H.264.

Provide configurable compression levels.

Transmission

The camera shall allow for video to be transported over:

HTTP (Unicast)

HTTPS (Unicast)

RTP (Unicast & Multicast)

RTP over RTSP (Unicast)

RTP over RTSP over HTTP (Unicast)

The camera shall support Quality of Service (QoS) to be able to prioritize traffic.

Image control

Support a configurable maximum shutter in the range from 2 to 1/29.500 second in 60Hz mode and the range from 2 to 1/24.500 seconds in 50 Hz mode.

Incorporate Automatic and Manual White Balance.

Be equipped with an electronic shutter and support automatic and manually defined exposure zones.

Be equipped with Wide Dynamic Range functionality.

Provide Back Light Compensation.

Allow for rotation of the image in steps of 90º.

Functionality

Web server

The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.

Optional components downloaded from the camera for specific tasks, e.g. Active X, shall be signed by an organization providing digital trust services, such as Verisign, Inc.

IP addresses

The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

The camera shall allow for automatic detection of the Camera based on UPnP and Bonjour when using a PC with an operating system supporting this feature.

The camera shall provide support for both IPv4 and IPv6.

Event functionality

The camera shall be equipped with an integrated event functionality, which can be trigged by:

Video Motion Detection

Schedule

Camera tampering

Embedded third party applications

Edge storage disruption detection

Response to triggers shall include:

Notification, using TCP, SMTP or HTTP

Image upload, using FTP, SMTP or HTTP

The camera shall provide memory for pre & post alarm recordings.

Event functions shall be configurable via the web interface.

Edge storage

The camera shall support continuous and event controlled recording to:

Local memory added to the cameras SD-card slot

Network attached storage, located on the local network

Protocol support

The camera shall incorporate support for at least IP, HTTP, HTTPS, SSL/TLS, TCP, ICMP, SNMPv1/v2c/v3 (MIB-II), RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, SOCKS, NTP and Bonjour.

The SMTP implementation shall include support for SMTP authentication.

Text overlay

The Camera shall:

Provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.

To ensure accuracy, the camera shall accept external time synchronization from an NTP (Network Time Protocol) server.

Provide the ability to apply a privacy mask to the image.

Allow for the overlay of a graphical image, such as a logotype, into the image.

Security

The camera shall:

Support the use of HTTPS and SSL/TLS, providing the ability to upload signed certificates to encrypt and secure authentication and communication of both administration data and video streams.

Support IEEE 802.1X authentication.

Provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

Restrict access to the built-in web server by usernames and passwords at three different levels.

API support

The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.

The camera shall conform to ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization, and shall be upgradable at any time.

Embedded applications

The camera shall provide a platform allowing the upload of third party applications into the camera.

The camera vendor shall provide a compatibility tool for the application vendor to verify the stability and performance impact of their uploaded application.

Installation and Maintenance

The camera shall:

Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the Cameras' configuration.

Support the use of SNMP-based management tools according to SNMP v1, 2c & 3 / MIB-II.

Allow updates of the software (firmware) over the network, using FTP or HTTP.

Provide the ability to apply a rectangle of customer-defined number of pixels to the image, which can be used as a pixel counter identifying the size of objects in number of pixels.

All customer-specific settings shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

User logs

The camera shall:

Provide a log file, containing information about the 250 latest connections and access attempts since the unit's latest restart. The file shall include information about the connecting IP addresses and the time of connecting.

Provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.

Camera diagnostics

The camera shall:

Be equipped with LEDs, capable of providing visible status information. LEDs shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.

Be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.

Interfaces

Network interface

The camera shall be equipped with one 100BASE-TX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto negotiation of network speed (100 MBit/s and 10 MBit/s) and transfer mode (full and half duplex).

Enclosure

The camera enclosure shall include the following:

Manufactured with a tamper resistant body providing encapsulated electronics

Clear and smoked transparent cover

The camera enclosure shall provide the ability to adjust the camera modules angle with at least ±180° horizontal, ±85° vertical and ±170° rotation while maintaining an image that is not interfered with by the camera housing

Power requirements

Power over Ethernet according to IEEE 802.3af - Class 2.

Environmental

The camera shall:

Operate in a temperature range of 0°C to +50°C (32°F to +122°F).

Operate in a humidity range of 10–85% RH (non-condensing).

Manufactured units

The camera shall be an AXIS P3354 Fixed Dome Network Camera.

[Remove above article if this is to be a performance-based specification.]

EXECUTION

Installation

The Contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.

All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA) or Network Video Recorder (NVR).

All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

A proper installation shall meet NEC (National Electrical Code – US only) per the guidelines of that year's revision. When properly installed equipment meets Low Voltage, Class 2 classification of the NEC.

Camera Type B

General Requirements

The camera shall be of manufacturer's official product line, designed for commercial/industrial 24/7/365 use.

The camera shall be based upon standard components and proven technology using open and published protocols.

Quality Assurance

All camera installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

All equipment provided shall be backed by a minimum of three years manufacturer warranty.

The specified unit shall be manufactured in accordance with ISO 9001 / EN 29001.

Environmental sustainability

The specified unit shall be manufactured in accordance with ISO 14000.

The specified unit shall be compliant with 2002/95/EG RoHS and 2002/96/EG WEEE.

Certifications and standards

The camera shall carry the following EMC approvals:

EN55022, EN55024

FCC Part 15 - Subpart B

VCCI

C-tick AS/NZS CISPR22

ICES-003

The camera shall meet the following product safety standards

UL / EN 60950 -1

UL / EN 60950 -22

The camera shall meet the following standards

MPEG-4:

ISO/IEC 14496-10 AVC (H.264)

Networking:

IEEE 802.3af (Power over Ethernet)

IEEE 802.1X (Authentication)

IPv4 (RFC 791)

IPv6 (RFC 2460)

QoS – DiffServ (RFC 2475)

Network video

ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization.

Mechanical Environment:

IEC 62262 Class IK10 (Impact resistance)

Railway Environment:

EN50121-4

IEC62236-4

PRODUCTS

General

The camera shall:

Be designed to provide at least two video streams in HDTV 720p (1280x720) at up to 30 frames per second (60Hz mode) or 25 frames per second (50Hz mode) using H.264 or Motion JPEG.

Be equipped with Day/Night functionality and remote zoom and focus capabilities.

Operate on an open source; Linux-based platform, and including a built-in web server.

Be equipped with a slot for SD/SDHC memory card expansion.

Be manufactured with an all-metal vandal resistant body.

Hardware

The camera shall:

Use a high quality IR-sensitive progressive scan sensor.

Be equipped with a removable IR-cut filter, providing so-called day/night functionality.

Be equipped with a high-quality varifocal lens, provide automated iris functionality with P-Iris control, and provide remote zoom and focus functionality.

Provide pictures down to 0.15 lux while in day mode (with IR-filter in use) and down to 0.03 lux while in night mode (with IR-filter removed).

Support memory expansion by providing an available SD/SDHC card slot.

Video

Resolution

The camera shall be able to deliver at least two individually configurable full resolution full frame rate video streams over IP networks.

Supported video resolutions shall include:

640x360 (16:9)

640x480

1280x720 (16:9)

1280x960

1400x1050 (scaled)

The camera shall be able to provide both landscape format (4:3 and 16:9 aspect ratio) as well as corridor format (3:4 and 9:16 aspect ratio).

Encoding

The camera shall:

Support Motion JPEG encoding in a selectable range up to 30 frames per second in all resolutions.

Support Baseline Profile H.264 encoding with motion estimation in up to 30 frames per second in all resolutions.

Support Main Profile H.264 encoding with motion estimation and context-adaptive binary arithmetic coding (CABAC) in up to 30 frames per second in all resolutions.

Be able to provide independently configured simultaneous H.264 and Motion JPEG streams.

Support both Constant Bit Rate (CBR) and Variable Bit Rate (VBR) in H.264.

Provide configurable compression levels.

Transmission

The camera shall allow for video to be transported over:

HTTP (Unicast)

HTTPS (Unicast)

RTP (Unicast & Multicast)

RTP over RTSP (Unicast)

RTP over RTSP over HTTP (Unicast)

The camera shall support Quality of Service (QoS) to be able to prioritize traffic.

Image control
1.   Support a configurable maximum shutter in the range from 2 to 1/29.500 second in 60Hz mode and the range from 2 to 1/24.500 seconds in 50Hz mode.

Incorporate Automatic and Manual White Balance.

Be equipped with an electronic shutter and support automatic and manually defined exposure zones.

Be equipped with Wide Dynamic Range functionality.

Provide Back Light Compensation.

Allow for rotation of the image in steps of 90º.

Audio

The camera shall support two-way full duplex audio:

Input sources

Built-in microphone

External microphone

External line device

Output sources

External line device

Encoding

The camera shall support:

AAC LC at 8/16 kHz

G.711 PCM at 8 kHz

G.726 ADPCM at 8 kHz

Functionality

Web server

The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.

Optional components downloaded from the camera for specific tasks, e.g. Active X, shall be signed by an organization providing digital trust services, such as Verisign, Inc.

IP addresses

The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

The camera shall allow for automatic detection of the Camera based on UPnP and Bonjour when using a PC with an operating system supporting this feature.

The camera shall provide support for both IPv4 and IPv6.

Event functionality

The camera shall be equipped with an integrated event functionality, which can be trigged by:

Video Motion Detection

Schedule

Camera tampering

Embedded third party applications

External input

Audio Detection

Edge storage disruption detection

Response to triggers shall include:

Notification, using TCP, SMTP or HTTP

Image upload, using FTP, SMTP or HTTP

Activating external output

The camera shall provide memory for pre & post alarm recordings.

Event functions shall be configurable via the web interface.

Edge storage

The camera shall support continuous and event controlled recording to:

Local memory added to the cameras SD-card slot

Network attached storage, located on the local network

The camera shall be able to detect and notify Edge storage disruptions

Protocol support

The camera shall incorporate support for at least IP, HTTP, HTTPS, SSL/TLS, TCP, ICMP, SNMPv1/v2c/v3 (MIB-II), RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, SOCKS, NTP and Bonjour.

The SMTP implementation shall include support for SMTP authentication.

Text overlay

The Camera shall:

Provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.

To ensure accuracy, the camera shall accept external time synchronization from an NTP (Network Time Protocol) server.

Provide the ability to apply a privacy mask to the image.

Allow for the overlay of a graphical image, such as a logotype, into the image.

Security

The camera shall:

Support the use of HTTPS and SSL/TLS, providing the ability to upload signed certificates to encrypt and secure authentication and communication of both administration data and video streams.

Support IEEE 802.1X authentication.

Provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

Restrict access to the built-in web server by usernames and passwords at three different levels.

API support

The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.

The camera shall conform to ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization, and shall be upgradable at any time.

Embedded applications

The camera shall provide a platform allowing the upload of third party applications into the camera.

The camera vendor shall provide a compatibility tool for the application vendor to verify the stability and performance impact of their uploaded application.

Installation and Maintenance

The camera shall:

Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the Cameras' configuration.

Support the use of SNMP-based management tools according to SNMP v1, 2c & 3 / MIB-II.

Allow updates of the software (firmware) over the network, using FTP or HTTP.

Provide the ability to apply a rectangle of customer-defined number of pixels to the image, which can be used as a pixel counter identifying the size of objects in number of pixels.

All customer-specific settings shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

User logs

The camera shall:

Provide a log file, containing information about the 250 latest connections and access attempts since the unit's latest restart. The file shall include information about the connecting IP addresses and the time of connecting.

Provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.

Camera diagnostics

The camera shall:

Be equipped with LEDs, capable of providing visible status information. LEDs shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.

Be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.

Interfaces

Network interface

The camera shall be equipped with one 100BASE-TX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto negotiation of network speed (100 MBit/s and 10 MBit/s) and transfer mode (full and half duplex).

Audio

The camera shall be equipped with one 3.5 mm jack for line/mic input and one 3.5 mm jack for line output.

Inputs/Outputs

The camera shall be equipped with one digital (alarm) input and one digital output, accessible via a removable terminal block. This input shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.

Enclosure

The camera enclosure shall include the following:

 Manufactured with an all-metal vandal resistant body providing encapsulated electronics

Vandal resistant casing with clear transparent cover

 Impact resistance according to IK10

The camera enclosure shall provide the ability to adjust the camera modules angle with at least ±180° horizontal, ±85° vertical and ±170° rotation while maintaining an image that is not interfered with by the camera housing

Power requirements

Power over Ethernet according to IEEE 802.3af - Class 2.

Environmental

The camera shall:

Operate in a temperature range of 0°C to +50°C (32°F to +122°F).

Operate in a humidity range of 10–85% RH (non-condensing).

Manufactured units

The camera shall be an AXIS P3364-V Fixed Dome Network Camera.

[Remove above article if this is to be a performance-based specification.]

EXECUTION

Installation

The Contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.

All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA) or Network Video Recorder (NVR).

All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

A proper installation shall meet NEC (National Electrical Code – US only) per the guidelines of that year's revision. When properly installed equipment meets Low Voltage, Class 2 classification of the NEC.

Camera Type C

General Requirements

The camera shall be of manufacturer's official product line, designed for commercial/industrial 24/7/365 use.

The camera shall be based upon standard components and proven technology using open and published protocols.

Quality Assurance

All camera installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

All equipment provided shall be backed by a minimum of three years manufacturer warranty.

The specified unit shall be manufactured in accordance with ISO 9001 / EN 29001.

Environmental sustainability

The specified unit shall be manufactured in accordance with ISO 14000.

The specified unit shall be compliant with 2002/95/EG RoHS and 2002/96/EG WEEE.

Certifications and standards

The camera shall carry the following EMC approvals:

EN55022, EN55024

FCC Part 15 - Subpart B

VCCI

C-tick AS/NZS CISPR22

ICES-003

The camera shall meet relevant parts of the following video standards:

SMPTE 296M (HDTV 720p)

SMPTE 274M (HDTV 1080p)

The camera shall meet the following standards

MPEG-4:

ISO/IEC 14496-10 AVC (H.264)

Networking:

IEEE 802.3af (Power over Ethernet)

IPv4 (RFC 791)

IPv6 (RFC 2460)

QoS – DiffServ (RFC 2475)

Mechanical Environment:

IEC 62262 Class IK10 (Impact resistance)

PRODUCTS

General

The camera shall:

Be designed to provide streams up to 2592x1944 pixels resolution at up to 12 frames per second using H.264 or Motion JPEG, and provide video streams in HDTV 1080p (1920x1080) at up to 30 frames per second using H.264 or Motion JPEG.

Be equipped with Day/Night functionality and remote zoom and focus capabilities.

Operate on an open source; Linux-based platform, and including a built-in web server.

Be equipped with a slot for SD/SDHC memory card expansion.

Be manufactured with an all-metal body and a vandal-resistant casing.

Hardware

The camera shall:

Use a high quality IR-sensitive progressive scan megapixel sensor.

Be equipped with a removable IR-cut filter, providing so-called day/night functionality.

Be equipped with a high-quality varifocal lens, provide automated iris functionality with P-Iris control, and provide remote zoom and focus functionality.

Provide pictures down to 0.2 lux while in day mode (with IR-filter in use) and down to 0.04 lux while in night mode (with IR-filter removed).

Support memory expansion by providing an available SD/SDHC card slot.

Video

Resolution

The camera shall be able to deliver full resolution video (2592x1944 pixels) at 12 frames per second.

The camera shall be able to deliver full frame rate HDTV 1080p video over IP networks.

Supported video resolutions shall include:

640x480

800x600

1024x768

1280x720 (HDTV 720p)

1920x1080 (HDTV 1080p)

2592x1944

The camera shall be able to provide both landscape format (4:3 and 16:9 aspect ratio) as well as corridor format (3:4 and 9:16 aspect ratio).

Encoding

The camera shall:

Support Motion JPEG encoding in a selectable range from 1 up to 12 frames per second in all resolutions up to 2592x1944 pixels.

Support Motion JPEG encoding in up to 30 frames per second in HDTV 1080p (1920x1080 resolution).

Support Baseline Profile H.264 encoding with motion estimation in a selectable range from 1 up to 12 frames per second in all resolutions up to 2592x1944 pixels.

Support Baseline Profile H.264 encoding with motion estimation in up to 30 frames per second in HDTV 1080p (1920x1080 resolution).

Support Main Profile H.264 encoding with motion estimation and context-adaptive binary arithmetic coding (CABAC) in a selectable range from 1 up to 12 frames per second in all resolutions up to 2592x1944 pixels.

Support Main Profile H.264 encoding with motion estimation and context-adaptive binary arithmetic coding (CABAC) in up to 30 frames per second in HDTV 1080p (1920x1080 resolution).

Be able to provide independently configured simultaneous H.264 and Motion JPEG streams.

Support both Constant Bit Rate (CBR) and Variable Bit Rate (VBR) in H.264.

Provide configurable compression levels.

Transmission

The camera shall allow for video to be transported over:

HTTP (Unicast)

HTTPS (Unicast)

RTP (Unicast & Multicast)

RTP over RTSP (Unicast)

RTP over RTSP over HTTP (Unicast)

The camera shall support Quality of Service (QoS) to be able to prioritize traffic.

Image control

The camera shall:

Incorporate Automatic and Manual White Balance

Be equipped with an electronic shutter operating in the range 2 to 1/28.000 second, and manually defined exposure zones.

Be equipped with Wide Dynamic Range functionality.

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Provide Back Light Compensation.

Allow for rotation of the image in steps of 90º.

Audio

The camera shall support two-way full duplex audio:

Input sources

Built-in microphone

External microphone

External line device

Output sources

External line device

Encoding

The camera shall support:

AAC LC at 8/16 kHz

G.711 PCM at 8 kHz

G.726 ADPCM at 8 kHz

Functionality

Web server

The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.

Optional components downloaded from the camera for specific tasks, e.g. Active X, shall be signed by an organization providing digital trust services, such as Verisign, Inc.

IP addresses

The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a PC with an operating system supporting this feature.

The camera shall provide support for both IPv4 and IPv6.

Event functionality

The camera shall be equipped with an integrated event functionality, which can be trigged by:

External input

Video Motion Detection

Audio Detection

Schedule

Camera tampering

Local storage full

Response to triggers shall include:

Notification, using TCP, SMTP or HTTP

Image upload, using FTP, SMTP or HTTP

Activating external output

Recording to local storage

The camera shall provide memory for pre & post alarm recordings.

Event functionality shall be configurable via the web interface.

Protocol support

The camera shall incorporate support for at least IP, HTTP, HTTPS, SSL/TLS, TCP, ICMP, SNMPv1/v2c/v3 (MIB-II), RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, SOCKS, NTP and Bonjour.

The SMTP implementation shall include support for SMTP authentication.

Text overlay

The camera shall:

Provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.

To ensure accuracy, the camera shall accept external time synchronization from an NTP (Network Time Protocol) server.

Provide the ability to apply a privacy mask to the image.

Allow for the overlay of a graphical image, such as a logotype, into the image.

Multi-view streaming

The camera shall allow for at least 8 individual and selectable areas of the image to be cropped out and made available as individual video streams.

Security

The camera shall:

Support the use of HTTPS and SSL/TLS, providing the ability to upload signed certificates to encrypt and secure authentication and communication of both administration data and video streams.

Support IEEE 802.1X authentication.

Provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

Restrict access to the built-in web server by usernames and passwords at three different levels.

API support

The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.

The camera shall conform to the network video standard as defined by the ONVIF organization.

Embedded applications

The camera shall provide a platform allowing the upload of third party applications into the camera.

The camera vendor shall provide a compatibility tool for the application vendor to verify the stability and performance impact of their uploaded application.

Installation and Maintenance

The camera shall:

Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the cameras' configuration.

Support the use of SNMP-based management tools according to SNMP v1, 2c & 3 / MIB-II.

Allow updates of the software (firmware) over the network, using FTP or HTTP.

Provide the ability to apply a rectangle of customer-defined number of pixels to the image, which can be used as a pixel counter identifying the size of objects in number of pixels.

All customer-specific settings shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

User logs

The camera shall:

Provide a log file, containing information about the 250 latest connections and access attempts since the unit's latest restart. The file shall include information about the connecting IP addresses and the time of connecting.

Provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.

Camera diagnostics

The camera shall:

Be equipped with LEDs, capable of providing visible status information. LEDs shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.

Be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.

Interfaces

Inputs/Outputs

The camera shall be equipped with one digital (alarm) input and one digital output, accessible via a removable terminal block. This input shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.

Audio

The camera shall be equipped with one 3.5 mm jack for line/mic input and one 3.5 mm jack for line output.

Network interface

The camera shall be equipped with one 100BASE-TX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto negotiation of network speed (100 MBit/s and 10 MBit/s) and transfer mode (full and half duplex).

Enclosure

The camera shall include the following:

All-metal body providing encapsulated electronics

Vandal-resistant casing with clear transparent cover

Impact resistance according to IK10

The camera shall provide the ability to adjust the camera modules angle with at least ±180° horizontal and ±80° vertical while maintaining an image that is not interfered with by the camera casing.

The camera shall provide the ability to rotate the camera module ±170° to provide a horizontal view regardless of the cameras mounting angle and selected aspect ratio.

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Power requirements

Power over Ethernet according to IEEE 802.3af - Class 2.

Environmental

The camera shall:

Operate in a temperature range of 0°C to +50°C (32°F to +122°F).

Operate in a humidity range of 15–85% RH (non-condensing).

Manufactured units

The camera shall be an AXIS P3367-V Fixed Dome Network Camera.

[Remove above article if this is to be a performance-based specification.]

EXECUTION

Installation

The Contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.

All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA) or Network Video Recorder (NVR).

All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

Camera Type D

General Requirements

The camera shall be of manufacturer's official product line, designed for commercial/industrial 24/7/365 use.

The camera shall be based upon standard components and proven technology using open and published protocols.

Quality Assurance

All camera installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

All equipment provided shall be backed by a minimum of three years manufacturer warranty.

The specified unit shall be manufactured in accordance with ISO 9001 / EN 29001.

Environmental sustainability

The specified unit shall be manufactured in accordance with ISO 14000.

The specified unit shall be compliant with 2002/95/EG RoHS and 2002/96/EG WEEE.

Certifications and standards

The camera shall carry the following EMC approvals:

EN55022, EN55024

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VCCI

C-tick AS/NZS CISPR22

ICES-003

The camera shall meet relevant parts of the following video standards:

SMPTE 296M (HDTV 720p)

SMPTE 274M (HDTV 1080p)

The camera shall meet the following standards

MPEG-4:

ISO/IEC 14496-10 AVC (H.264)

Networking:

IEEE 802.3af (Power over Ethernet)

IPv4 (RFC 791)

IPv6 (RFC 2460)

QoS – DiffServ (RFC 2475)

Network video

Network video standard as defined by the ONVIF organization

Mechanical Environment:

IEC 62262 Class IK10 (Impact resistance)

IEC 60529 IP66 (Ingress protection)

NEMA 250 Type 4X (Enclosure protection)

Railway environment:

EN50121-4 (Electromagnetic compatibility)

IEC62236-4 (Electromagnetic compatibility)

PRODUCTS

General

The camera shall:

Be designed to provide streams up to 2592x1944 pixels resolution at up to 12 frames per second using H.264 or Motion JPEG, and provide video streams in HDTV 1080p (1920x1080) at up to 30 frames per second using H.264 or Motion JPEG.

Be equipped with Day/Night functionality and remote zoom and focus capabilities.

Operate on an open source; Linux-based platform, and including a built-in web server.

Be equipped with a slot for SD/SDHC memory card expansion.

Be manufactured with an all-metal body, vandal resistant casing and support operation between -40 to +55°C (-40 to +131°F) and be both IP66 and NEMA 4X-rated.

Hardware

The camera shall:

Use a high quality IR-sensitive progressive scan megapixel sensor.

Be equipped with a removable IR-cut filter, providing so-called day/night functionality.

Be equipped with a high-quality varifocal lens, provide automated iris functionality with P-Iris control, and provide remote zoom and focus functionality.

Provide pictures down to 0.2 lux while in day mode (with IR-filter in use) and down to 0.04 lux while in night mode (with IR-filter removed).

Support memory expansion by providing an available SD/SDHC card slot.

Video

Resolution

The camera shall be able to deliver full resolution video (2592x1944 pixels) at 12 frames per second.

The camera shall be able to deliver full frame rate HDTV 1080p video over IP networks.

Supported video resolutions shall include:

640x480

800x600

1024x768

1280x720 (HDTV 720p)

1920x1080 (HDTV 1080p)

2592x1944

The camera shall be able to provide both landscape format (4:3 and 16:9 aspect ratio) as well as corridor format (3:4 and 9:16 aspect ratio).

Encoding

The camera shall:

Support Motion JPEG encoding in a selectable range from 1 up to 12 frames per second in all resolutions up to 2592x1944 pixels.

Support Motion JPEG encoding in up to 30 frames per second in HDTV 1080p (1920x1080 resolution).

Support Baseline Profile H.264 encoding with motion estimation in a selectable range from 1 up to 12 frames per second in all resolutions up to 2592x1944 pixels.

Support Baseline Profile H.264 encoding with motion estimation in up to 30 frames per second in HDTV 1080p (1920x1080 resolution).

Support Main Profile H.264 encoding with motion estimation and context-adaptive binary arithmetic coding (CABAC) in a selectable range from 1 up to 12 frames per second in all resolutions up to 2592x1944 pixels.

Support Main Profile H.264 encoding with motion estimation and context-adaptive binary arithmetic coding (CABAC) in up to 30 frames per second in HDTV 1080p (1920x1080 resolution).

Be able to provide independently configured simultaneous H.264 and Motion JPEG streams.

Support both Constant Bit Rate (CBR) and Variable Bit Rate (VBR) in H.264.

Provide configurable compression levels.

Transmission

The camera shall allow for video to be transported over:

HTTP (Unicast)

HTTPS (Unicast)

RTP (Unicast & Multicast)

RTP over RTSP (Unicast)

RTP over RTSP over HTTP (Unicast)

The camera shall support Quality of Service (QoS) to be able to prioritize traffic.

Image control

The camera shall:

Incorporate Automatic and Manual White Balance

Be equipped with an electronic shutter operating in the range 2 to 1/28.000 second, and manually defined exposure zones.

Be equipped with Wide Dynamic Range functionality.

Provide Back Light Compensation.

Allow for rotation of the image in steps of 90º.

Audio

The camera shall support two-way full duplex audio:

Input sources

External microphone

External line device

Output sources

External line device

Encoding

The camera shall support:

AAC LC at 8/16 kHz

G.711 PCM at 8 kHz

G.726 ADPCM at 8 kHz

Functionality

Web server

The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.

Optional components downloaded from the camera for specific tasks, e.g. Active X, shall be signed by an organization providing digital trust services, such as Verisign, Inc.

IP addresses

The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a PC with an operating system supporting this feature.

The camera shall provide support for both IPv4 and IPv6.

Event functionality

The camera shall be equipped with an integrated event functionality, which can be trigged by:

External input

Video Motion Detection

Audio Detection

Schedule

Camera tampering

Local storage full

Response to triggers shall include:

Notification, using TCP, SMTP or HTTP

Image upload, using FTP, SMTP or HTTP

Activating external output

Recording to local storage

The camera shall provide memory for pre & post alarm recordings.

Event functionality shall be configurable via the web interface.

Protocol support

The camera shall incorporate support for at least IP, HTTP, HTTPS, SSL/TLS, TCP, ICMP, SNMPv1/v2c/v3 (MIB-II), RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, SOCKS, NTP and Bonjour.

The SMTP implementation shall include support for SMTP authentication.

Text overlay

The Camera shall:

Provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.

To ensure accuracy, the camera shall accept external time synchronization from an NTP (Network Time Protocol) server.

Provide the ability to apply a privacy mask to the image.

Allow for the overlay of a graphical image, such as a logotype, into the image.

Multi-view streaming

The camera shall allow for at least 8 individual and selectable areas of the image to be cropped out and made available as individual video streams.

Security

The camera shall:

Support the use of HTTPS and SSL/TLS, providing the ability to upload signed certificates to encrypt and secure authentication and communication of both administration data and video streams.

Support IEEE 802.1X authentication.

Provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

Restrict access to the built-in web server by usernames and passwords at three different levels.

API support

The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.

The camera shall conform to the network video standard as defined by the ONVIF organization.

Embedded applications

The camera shall provide a platform allowing the upload of third party applications into the camera.

The camera vendor shall provide a compatibility tool for the application vendor to verify the stability and performance impact of their uploaded application.

Installation and Maintenance

The camera shall:

Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the cameras' configuration.

Support the use of SNMP-based management tools according to SNMP v1, 2c & 3 / MIB-II.

Allow updates of the software (firmware) over the network, using FTP or HTTP.

Provide the ability to apply a rectangle of customer-defined number of pixels to the image, which can be used as a pixel counter identifying the size of objects in number of pixels.

All customer-specific settings shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

User logs

The camera shall:

Provide a log file, containing information about the 250 latest connections and access attempts since the unit's latest restart. The file shall include information about the connecting IP addresses and the time of connecting.

Provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.

Camera diagnostics

The camera shall:

Be equipped with LEDs, capable of providing visible status information. LEDs shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.

Be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.

Interfaces

Inputs/Outputs

The camera shall be equipped with one digital (alarm) input and one digital output, accessible via a removable terminal block. This input shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.

Audio

The camera shall be equipped with one 3.5 mm jack for line/mic input and one 3.5 mm jack for line output.

Network interface

The camera shall be equipped with one 100BASE-TX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto negotiation of network speed (100 MBit/s and 10 MBit/s) and transfer mode (full and half duplex).

Enclosure

The camera shall include the following:

All-metal body providing encapsulated electronics

Vandal resistant casing with clear transparent cover

IP66-rating

NEMA 4X-rating

Impact resistance to IK10

Thermostat, heater and fan inside the enclosure

Fitted with a dehumidifying membrane

Removable weather shield

The camera shall provide the ability to adjust the camera modules angle with at least ±180° horizontal and ±80° vertical while maintaining an image that is not interfered with by the camera housing.

The camera shall provide the ability to rotate the camera module ±170° to provide a horizontal view regardless of the cameras mounting angle and selected aspect ratio.

Power requirements

Power over Ethernet according to IEEE 802.3af - Class 3.

Environmental

The camera shall:

Operate in a temperature range of -40°C to +55°C (-40°F to +131°F).

Operate in a humidity range of 15–100% RH (condensing).

Manufactured units

The camera shall be an AXIS P3367-VE Fixed Dome Network Camera.

[Remove above article if this is to be a performance-based specification.]

EXECUTION

Installation

The Contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.

All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA) or Network Video Recorder (NVR).

All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

Camera Type E

General Requirements

The camera shall be of manufacturer's official product line, designed for commercial/industrial 24/7/365 use.

The camera shall be based upon standard components and proven technology using open and published protocols.

Quality Assurance

All camera installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

All equipment provided shall be backed by a minimum of three years manufacturer warranty.

The specified unit shall be manufactured in accordance with ISO 9001 / EN 29001.

Environmental sustainability

The specified unit shall be manufactured in accordance with ISO 14000.

The specified unit shall be compliant with 2002/95/EG RoHS and 2002/96/EG WEEE.

Certifications and standards

The camera shall carry the following EMC approvals:

EN55022, EN55024

FCC Part 15 - Subpart B

VCCI

C-tick AS/NZS CISPR22

ICES-003

The camera shall meet the following product safety standards

UL / EN 60950 -1

UL / EN 60950 -22

The camera shall meet relevant parts of the following video standards:

SMPTE 296M (HDTV 720p)

The camera shall meet the following standards

MPEG-4:

ISO/IEC 14496-10 AVC (H.264)

Networking:

IEEE 802.3af (Power over Ethernet)

IEEE 802.1X (Authentication)

IPv4 (RFC 791)

IPv6 (RFC 2460)

QoS – DiffServ (RFC 2475)

Network video

ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization.

Mechanical Environment:

IEC 62262 Class IK10 (Impact resistance)

IEC 60529 IP66 (Ingress protection)

NEMA 250 Type 4X (Enclosure protection)

Railway Environment:

EN50121-4

IEC62236-4

PRODUCTS

General

The camera shall:

Be designed to provide at least two video streams in HDTV 720p (1280x720) at up to 30 frames per second (60Hz mode) or 25 frames per second (50Hz mode) using H.264 or Motion JPEG.

Be equipped with Day/Night functionality and remote zoom and focus capabilities.

Be equipped with Wide Dynamic Range including dynamic capture mode.

Operate on an open source; Linux-based platform, and including a built-in web server.

Be equipped with a slot for SD/SDHC memory card expansion.

Be manufactured with an all-metal vandal resistant body.

Hardware

The camera shall:

Use a high quality IR-sensitive progressive scan sensor.

Be equipped with a removable IR-cut filter, providing so-called day/night functionality.

Be equipped with a high-quality varifocal lens, provide automated iris functionality with P-Iris control, and provide remote zoom and focus functionality.

Provide pictures down to 0.5 lux while in day mode (with IR-filter in use) and down to 0.08 lux while in night mode (with IR-filter removed) with dynamic capture based WDR-functionality activated.

Provide pictures down to 0.15 lux while in day mode (with IR-filter in use) and down to 0.03 lux while in night mode (with IR-filter removed) without dynamic capture based WDR-functionality activated.

Support memory expansion by providing an available SD/SDHC card slot.

Video

Resolution

The camera shall be able to deliver at least two individually configurable full resolution full frame rate video streams over IP networks.

Supported video resolutions shall include:

640x360 (16:9)

640x480

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1280x720 (16:9)

1280x960

1400x1050 (scaled)

The camera shall be able to provide both landscape format (4:3 and 16:9 aspect ratio) as well as corridor format (3:4 and 9:16 aspect ratio).

Encoding

The camera shall:

Support Motion JPEG encoding in a selectable range up to 30 frames per second in all resolutions.

Support Baseline Profile H.264 encoding with motion estimation in up to 30 frames per second in all resolutions.

Support Main Profile H.264 encoding with motion estimation and context-adaptive binary arithmetic coding (CABAC) in up to 30 frames per second in all resolutions.

Be able to provide independently configured simultaneous H.264 and Motion JPEG streams.

Support both Constant Bit Rate (CBR) and Variable Bit Rate (VBR) in H.264.

Provide configurable compression levels.

Transmission

The camera shall allow for video to be transported over:

HTTP (Unicast)

HTTPS (Unicast)

RTP (Unicast & Multicast)

RTP over RTSP (Unicast)

RTP over RTSP over HTTP (Unicast)

The camera shall support Quality of Service (QoS) to be able to prioritize traffic.

Image control

The camera shall:

Incorporate Automatic and Manual White Balance

Be equipped with an electronic shutter and support automatic and manually defined exposure zones

Be equipped with Wide Dynamic Range functionality including dynamic capture, providing up to 120dB dynamic range in the range 0.5 – 500.000lux.

Support a configurable maximum shutter in the range from 1/231 to 1/44 seconds in 60Hz mode and the range from 1/192 to 1/37 seconds in 50Hz mode with dynamic capture based WDR-functionality activated.

Support a configurable maximum shutter in the range from 2 to 1/29.500 second in 60Hz mode and the range from 2 to 1/24.500 seconds in 50 Hz mode without dynamic capture based WDR-functionality activated.

Provide Back Light Compensation.

Allow for rotation of the image in steps of 90º.

Audio

The camera shall support two-way full duplex audio:

Input sources

Built-in microphone

External microphone

External line device

Output sources

External line device

Encoding

The camera shall support:

AAC LC at 8/16 kHz

G.711 PCM at 8 kHz

G.726 ADPCM at 8 kHz

Functionality

Web server

The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.

Optional components downloaded from the camera for specific tasks, e.g. Active X, shall be signed by an organization providing digital trust services, such as Verisign, Inc.

IP addresses

The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

The camera shall allow for automatic detection of the Camera based on UPnP and Bonjour when using a PC with an operating system supporting this feature.

The camera shall provide support for both IPv4 and IPv6.

Event functionality

The camera shall be equipped with an integrated event functionality, which can be trigged by:

Video Motion Detection

Schedule

Camera tampering

Embedded third party applications

External input

Audio Detection

Edge storage disruption detection

Response to triggers shall include:

Notification, using TCP, SMTP or HTTP

Image upload, using FTP, SMTP or HTTP

Activating external output

Recording to local storage

The camera shall provide memory for pre & post alarm recordings.

Event functions shall be configurable via the web interface.

Edge storage

The camera shall support continuous and event controlled recording to:

Local memory added to the cameras SD-card slot

Network attached storage, located on the local network

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The camera shall be able to detect and notify Edge storage disruptions

Protocol support

The camera shall incorporate support for at least IP, HTTP, HTTPS, SSL/TLS, TCP, ICMP, SNMPv1/v2c/v3 (MIB-II), RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, SOCKS, NTP and Bonjour.

The SMTP implementation shall include support for SMTP authentication.

Text overlay

The Camera shall:

Provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.

To ensure accuracy, the camera shall accept external time synchronization from an NTP (Network Time Protocol) server.

Provide the ability to apply a privacy mask to the image.

Allow for the overlay of a graphical image, such as a logotype, into the image.

Security

The camera shall:

Support the use of HTTPS and SSL/TLS, providing the ability to upload signed certificates to encrypt and secure authentication and communication of both administration data and video streams.

Support IEEE 802.1X authentication.

Provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

Restrict access to the built-in web server by usernames and passwords at three different levels.

API support

The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.

The camera shall conform to ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization, and shall be upgradable at any time.

Embedded applications

The camera shall provide a platform allowing the upload of third party applications into the camera.

The camera vendor shall provide a compatibility tool for the application vendor to verify the stability and performance impact of their uploaded application.

Installation and Maintenance

The camera shall:

Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the Cameras' configuration.

Support the use of SNMP-based management tools according to SNMP v1, 2c & 3 / MIB-II.

Allow updates of the software (firmware) over the network, using FTP or HTTP.

Provide the ability to apply a rectangle of customer-defined number of pixels to the image, which can be used as a pixel counter identifying the size of objects in number of pixels.

All customer-specific settings shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

User logs

The camera shall:

Provide a log file, containing information about the 250 latest connections and access attempts since the unit's latest restart. The file shall include information about the connecting IP addresses and the time of connecting.

Provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.

Camera diagnostics

The camera shall:

Be equipped with LEDs, capable of providing visible status information. LEDs shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.

Be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.

Interfaces

Network interface

The camera shall be equipped with one 100BASE-TX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto negotiation of network speed (100 MBit/s and 10 MBit/s) and transfer mode (full and half duplex).

Audio

The camera shall be equipped with one 3.5 mm jack for line/mic input and one 3.5 mm jack for line output.

Inputs/Outputs

The camera shall be equipped with one digital (alarm) input and one digital output, accessible via a removable terminal block. This input shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.

Enclosure

The camera enclosure shall include the following:

Manufactured with an all-metal vandal resistant body providing encapsulated electronics

Vandal resistant casing with clear transparent cover

Impact resistance according to IK10

The camera enclosure shall provide the ability to adjust the camera modules angle with at least ±180° horizontal, ±80° vertical and ±170° rotation while maintaining an image that is not interfered with by the camera housing

Power requirements

Power over Ethernet according to IEEE 802.3af - Class 2.

Environmental

The camera shall:

Operate in a temperature range of 0°C to +50°C (32°F to +122°F).

Operate in a humidity range of 10–85% RH (non-condensing).

Manufactured units

The camera shall be an AXIS P3384-VE Fixed Dome Network Camera.

[Remove above article if this is to be a performance-based specification.]

EXECUTION

Installation

The Contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.

All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA) or Network Video Recorder (NVR).

All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

A proper installation shall meet NEC (National Electrical Code – US only) per the guidelines of that year's revision. When properly installed equipment meets Low Voltage, Class 2 classification of the NEC.

Camera Type F

General Requirements

The camera shall be of manufacturer's official product line, designed for commercial/industrial 24/7/365 use.

The camera shall be based upon standard components and proven technology using open and published protocols.

Quality Assurance

All camera installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

The contractor or designated subcontractor shall submit credentials of completed manufacturer certification, verified by a third party organization, as proof of the knowledge.

All equipment provided shall be backed by a minimum of three years manufacturer warranty.

The manufacturer shall provide the option of extended warranty for the camera. The optional extended warranty shall be available in two-year extension blocks for a total warranty period of maximum five years.

The specified unit shall be manufactured in accordance with ISO 9001.

Environmental sustainability

The specified unit shall be manufactured in accordance with ISO 14001.

The specified unit shall be compliant with the EU directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE).

The specified unit shall be compliant with the EU regulation 1907/2006 (REACH).

Certifications and standards

The camera shall carry the following EMC approvals:

EN55022, EN55024

FCC Part 15 - Subpart B

VCCI

C-tick AS/NZS CISPR22

ICES-003

The camera shall meet the following product safety standards

IEC/EN/UL 60950-1

IEC/EN/UL 60950-22

The camera shall meet relevant parts of the following video standards:

SMPTE 296M (HDTV 720p)

SMPTE 274M (HDTV 1080p)

The camera shall meet the following standards:

MPEG-4:

ISO/IEC 14496-10 AVC (H.264)

Networking:

IEEE 802.3af/802.3at (Power over Ethernet)

IEEE 802.1X (Authentication)

IPv4 (RFC 791)

IPv6 (RFC 2460)

QoS – DiffServ (RFC 2475)

Network video

ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization.

Mechanical Environment:

IEC/EN 60529 IP66 (Ingress protection)

NEMA 250 Type 4X

EN 62471 (Photobiological Safety)

Railway environment:

EN 50121-4

IEC 62236-4

PRODUCTS

General

The camera shall:

Be designed to provide video streams in HDTV 1080p at up to 30 frames per second in Motion JPEG or H.264. Supporting resolutions up to 1280x800 pixels.

Operate on an open source; Linux-based platform, and including a built-in web server.

Be equipped with a slot for microSD/microSDHC/microSDXC memory card expansion, supporting memory up to 64 GB - speed class 10.

Be manufactured with an aluminum body providing encapsulated electronics.

Hardware

The camera shall:

Use an IR-sensitive progressive scan megapixel sensor.

Be equipped with a removable IR-cut filter, providing so-called day/night functionality.

Be fitted with a lens providing autofocus functionality.

Provide pictures down to 0.5 lux in color and down to 0.04 lux in B/W without IR illumination active.

Be equipped with IR LEDs with adjustable intensity and angle of illumination.

Support memory expansion by providing an available microSD/microSDHC/microSDXC card slot, supporting memory up to 64 GB - speed class 10.

Video

Resolution

The camera shall be able to deliver at least two individually configured full resolution video streams over IP networks.

Supported video resolutions shall include:

640x480 (4:3)

800x600 (4:3)

1280x960 (4:3)

    1280x720 (16:9) HDTV 720p

    1920x1080 (16:9) HDTV 1080p

    1280x800 (16:10) (1MP)

The camera shall be able to provide both landscape format (4:3 and 16:9 aspect ratio) as well as corridor format (3:4 and 9:16 aspect ratio).

Encoding

The camera shall:

Support Motion JPEG encoding in a selectable range up to 30 fps (60Hz), 25 fps (50Hz) in all resolutions.

Support Baseline Profile H.264 encoding with motion estimation in up to 25/30 frames per second in all resolutions.

Support Main Profile H.264 encoding with motion estimation and context-adaptive binary arithmetic coding (CABAC) in up to 25/30 frames per second in all resolutions.

Be able to provide independently configured simultaneous H.264 and Motion JPEG streams.

Support both Constant Bit Rate (CBR) and Variable Bit Rate (VBR) in H.264.

Support motion estimation in H.264/MPEG-4 Part 10/AVC.

Transmission

The camera shall allow for video to be transported over:

    HTTP (Unicast)

    HTTPS (Unicast)

    RTP (Unicast & Multicast)

    RTP over RTSP (Unicast)

    RTP over RTSP over HTTP (Unicast)

The camera shall support Quality of Service (QoS) to be able to prioritize traffic.

Image control

The camera shall incorporate Automatic and Manual White Balance.

The camera shall incorporate an electronic shutter operating in the range 1/28000 s to 2 s.

The camera shall provide backlight compensation.

The camera shall be equipped with Wide Dynamic Range functionality - dynamic contrast.

The camera shall support manually defined values for:

Color level

Brightness

Sharpness

Contrast

The camera shall incorporate a function for optimization of low light behavior.

Audio

The camera shall by the use of a separate connection module provide:

Full duplex audio

Input source

Output source

Encoding

The camera shall support:

AAC LC at 8/16 kHz

G.711 PCM at 8 kHz

G.726 ADPCM at 8 kHz

IR Illumination

The camera shall be equipped with built-in IR LEDs with adjustable angle of illumination and intensity.

The IR LEDs shall have a range of up to 15 m (50 ft) in widest field of view and up to 40 m (130 ft) in full tele view.

The IR LEDs shall emit light with a wavelength of 850 nm.

Functionality

Web server

The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.

Optional components downloaded from the camera for specific tasks, e.g. Active X, shall be signed by an organization providing digital trust services, such as Verisign, Inc.

IP addresses

The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

The camera shall allow for automatic detection of the Camera based on UPnP and Bonjour when using a PC with an operating system supporting this feature.

The camera shall provide support for both IPv4 and IPv6.

PTZ functionality

The camera shall:

Provide a function for preset positions.

Provide Gatekeeper functionality.

Provide functionality for Control Queue.

The camera shall:

Provide 18x optical zoom.

Provide 12x digital zoom

Event functionality

The camera shall be equipped with an integrated event functionality, which can be trigged by:

Video Motion Detection

Audio Detection

Live Stream Accessed

Camera tampering

Manual Trigger/Virtual Inputs

PTZ functionality

Temperature

External input

Embedded third party applications

Edge storage disruption detection

Response to triggers shall include:

Send notification, using HTTP, HTTPS, TCP or email

Send images, using FTP, HTTP, HTTPS, network share or email

Send video clip, using FTP, HTTP, HTTPS, network share or email

Recording to local storage and/or network attached storage

Activating external output

Play audio clip

PTZ control functionality

Activating embedded illumination/IR LED

The camera shall provide memory for pre & post alarm recordings.

Event functions shall be configurable via the web interface.

Edge storage

The camera shall support continuous and event controlled recording to:

Local memory added to the cameras SD-card slot

Network attached storage, located on the local network

The camera shall be able to detect and notify Edge storage disruptions.

The camera shall provide a function for altering the language of the user interface, and shall include support for at least 10 different languages.

Protocol support

The camera shall incorporate support for at least IP, HTTP, HTTPS, SSL/TLS, TCP, ICMP, SNMPv1/v2c/v3 (MIB-II), RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, SOCKS, NTP, CIFS/SMB and Bonjour.

The SMTP implementation shall include support for SMTP authentication.

Text overlay

The Camera shall:

Provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.

To ensure accuracy, the camera shall accept external time synchronization from an NTP (Network Time Protocol) server.

Provide the ability to apply 3D privacy masks to the image.

Allow for the overlay of a graphical image, such as a logotype, into the image.

Security

The camera shall:

Support the use of HTTPS and SSL/TLS, providing the ability to upload signed certificates to encrypt and secure authentication and communication of both administration data and video streams.

The camera shall provide centralized certificate management, with both pre-installed CA certificates and the ability to upload additional CA certificates. The certificates shall be signed by an organization providing digital trust services.

Support IEEE 802.1X authentication.

Provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

Restrict access to the built-in web server by usernames and passwords at three different levels.

API support

The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.

The camera shall conform to ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization, and shall be upgradable at any time.

Embedded applications

The camera shall provide a platform allowing the upload of third party applications into the camera.

The camera vendor shall provide a compatibility tool for the application vendor to verify the stability and performance impact of their uploaded application.

Installation and Maintenance

The camera shall:

Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the Cameras' configuration.

Support the use of SNMP-based management tools according to SNMP v1, 2c & 3 / MIB-II.

Allow updates of the software (firmware) over the network, using FTP or HTTP.

Provide the ability to apply a rectangle of customer-defined number of pixels to the image, which can be used as a pixel counter identifying the size of objects in number of pixels.

All customer-specific settings shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

Access logs

The camera shall:

Provide a log file, containing information about the 250 latest connections and access attempts since the unit's latest restart. The file shall include information about the connecting IP addresses and the time of connecting.

Provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.

Camera diagnostics

The camera shall:

Be equipped with LEDs, capable of providing visible status information. LEDs shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.

Be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.

The camera shall send a notification when the unit has re-booted and all services are initialized

Interfaces

Network interface

The camera shall be equipped with one 100BASE-TX Fast Ethernet-port, using a standard male RJ45 connector and shall support auto negotiation of network speed (100 MBit/s and 10 MBit/s) and transfer mode (full and half duplex).

Multifunctional connector

The unit shall, by using a separate connection module connected to the camera using a "multi wire cable", provide connectivity for:

Digital alarm inputs and outputs (x2). These inputs shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.

One 3.5mm jack for line/mic input and one 3.5mm jack for line out.

Enclosure

The camera enclosure shall include the following:

Be manufactured with an aluminum body providing encapsulated electronics.

Impact resistant casing with clear transparent cover

Power requirements

Power over Ethernet IEEE 802.3af/802.3at Type 1 Class 3

8-28 V DC, max 15.2 W

20-24 V AC, max 20.1 VA

Environmental

The camera shall:

Operate in a temperature range of -40 °C to +50 °C
(-40 °F to +122 °F).

Operate in a humidity range of 10–100% RH (condensing).

Manufactured units

The camera shall be an AXIS Q1765-LE Network Camera.

[Remove above article if this is to be a performance-based specification.]

EXECUTION

Installation

The Contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.

All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA) or Network Video Recorder (NVR).

All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

A proper installation shall meet NEC (National Electrical Code – US only) per the guidelines of that year's revision. When properly installed equipment meets Low Voltage, Class 2 classification of the NEC.

2. Cabling and mounting requirements

All cable is required to be Cat 6 plenum rated and terminated on Cat 6 T1A certified patch panels. No cable runs shall exceed 330 feet.

Utilize existing pathways and when new ones are needed, J-hooks are required every 4 feet.

Cable terminated in MDF room on Cat 6 patch panel in customer provided rack.

Cable terminated at device end with Cat 6 jack enclosed in housing and Cat 6 patch cord from jack to camera.

All cables runs must be marked permanently and clearly at both termination points, visible to all end users and technicians. Labeling of cables must follow established patterns previously established.

Cabling must be installed, tested and terminated using the most contemporary industry standards. A physical walk through of the courtroom facility to determine cabling needs and identify wiring closets, etc. is mandatory.

Exterior cameras must be mounted with a box on inside of building to house connections.

All work shall conform to the latest edition of the National Electrical Code, all Local Building Codes and Ordinances as applicable, ANSI/TIA/EIA-568-B.1 through ANSI/TIA/EIA/-568-B.3, NECS/BICSI Telecommunications Distribution Methods Manual.